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ABSTRACT

This study focuses on one narrow segment of the electronic technology revolution--the utilization of the Internet in community college mathematics courses. The study's primary interest is in community college mathematics programs in New Jersey. Thus, it considers the general use of the Internet by the mathematics departments in New Jersey's nineteen community colleges. The second component moves to the national level, which focuses on the use of the Internet to offer on-line mathematics courses rather than on the general use of the Internet. The goals of this component were to see how New Jersey compared to the nation in this area and to get input from mathematics faculty members who already offer on-line courses. Out of the 774 web sites for two-year colleges across the country in the study, 34% indicated that the college offered on-line courses, but only 10% indicated that they offered on-line mathematics courses. Several possible reasons are offered to explain the scarcity of on-line math courses. If colleges plan to offer on-line courses, they must be ready to provide a 24-hour help line for students. Technical support for faculty must include training on Web site development, strategies for using the Web effectively, and on how to use necessary software, e-mail, and chatrooms. Educators need to determine the characteristics that will allow a student to be successful in an on-line course. Adequate hardware is also a major consideration in going on-line. The survey instruments are appended. (VWC)

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Use of the Internet

in Teaching Mathematics

in the Community College

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Use of the Internet in Teaching Mathematics in the Community College

One of the most rapidly growing areas in higher education today is the use of the Internet as a supportive technology for the classroom. The Internet is used in many ways. Faculty instruct students to "surf the net" in search of information, data, and project ideas. Students use E-mail and chatrooms to communicate with faculty and other students. Faculty members use web sites to give assignments, post lecture notes, etc. In a rapidly expanding number of cases, college courses are being offered in a distance learning mode, or "on-line," over the Internet. Robert Moskowitz in his article, "Wired U.," sees this latter use as a major "revolution happening in education."[1]

With this rapid growth in the use of electronic technology comes many questions. Robert Jacobson has raised a number of questions in his Chronicle of Higher Education article, "Extending the Reach of 'Virtual' Classrooms."[2] Are we compromising the quality of education in our attempt to do more with less? Will answering endless E-mails from students increase the faculty workload? Will electronic classrooms eventually replace many professors? Will students lose out on social interaction and related social skills? There are a lot of questions and very few answers. This study focuses on one narrow segment of this revolution, the utilization of the Internet in community college mathematics courses.

There are two components to this study. The investigator's primary interest is in community college mathematics programs in New Jersey. Thus, the first component considers the general use of the Internet by the mathematics departments in New Jersey's nineteen community colleges. The second component moves to the national level. At this level the focus is on the use of the Internet to offer on-line mathematics courses rather than on the general use of the net. The goals of this component were to see how New Jersey compared to the nation in this area and to get input from mathematics faculty members who already offer on-line courses.

Use of the Internet in New Jersey's Community Colleges

During the 1999 Spring Semester, questionnaires were sent to representatives from each of the mathematics departments in New Jersey's nineteen community colleges. (A copy of the questionnaire is in Appendix A.) Sixteen questionnaires (84%) were returned. The responses represented every part of the state and the various sizes of community colleges in New Jersey. Of the sixteen department representatives who responded, eight (50%) indicated that their departments do not currently use the net in

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1. Moskowitz, Robert, "Wired U.", Internet World, October 1995, pg. 60.
2. Jacobson, Robert, "Extending the Reach of 'Virtual' Classrooms", The Chronicle of Higher Education, July 6, 1994, pp. A19 - A21.

any way. Four of the eight indicated that their departments planned to use the web in some way during the academic year 1999 - 2000. Three of these stated that they planned to offer at least one course on-line.

The list below indicates the reasons, in the order of frequency, given by the eight respondents for not currently using the Web.

4 Lack of adequate hardware
3 Lack of adequate funding
3 Still getting connected to the Web
3 Lack of adequate training for faculty
2 Lack of adequate support for the idea within the department
(One respondent specifically indicated that despite administrative support and the availability of hardware and training the faculty lacked adequate interest.)
2 Lack of adequate support from the administration

The lack of hardware or connection to the Web is not symptomatic of two-year colleges in New Jersey only. The researcher discovered that even though most two-year colleges nationwide have web sites, the majority of mathematics faculty are still not on-line.

The other eight respondents indicated that their departments used the Web in some way in at least one course. All eight also indicated that only a few members of their departments were involved in using the Internet for their courses. One respondent indicated that she was the only member of the department using the Web. Another stated that only three or four members out of twenty-three used the Web. Again as indicated above, the investigator found that this was true in other states as well.

The respondents indicated the Internet was used in the following courses and in the following ways.

		Use				
# of colleges	**Course**	**S M**	**C R**	**AP**	**E M**	**Full**
5	Basic Skills	2	1	3	3	-
2	College Algebra	-	-	-	1	1
2	Liberal Arts Math	-	-	2	1	-
1	Math Concepts	1	-	-	-	-
1	Topics	-	-	1	-	-
5	Statistics	-	-	1	4	1
3	Precalculus	1	-	2	3	-
6	Calculus	3	1	3	4	-
2	Linear Algebra	1	-	1	2	-
2	Differential Eq.	-	-	-	2	-

S M - support material such as syllabi, class notes, assignments etc. are given on the net
C R - chatroom is provided for the students to discuss their work with each other
AP - the net is used as a resource for applications and or research topics
E M - E-mail is utilized as a communication link between faculty and students
Full - the complete course is offered in "distance learning" mode on the net

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Only one of the colleges currently offers on-line courses - College Algebra and Statistics. Five respondents indicated their colleges would have on-line mathematics courses in the 1999 - 2000 academic year. This included the one currently having an on-line course, the three previously mentioned that currently do not use the Web at all, and one that currently uses the Web in a limited way.

At this point, E-mail seems to be the most popular application of the Internet. Several respondents commented about its use. They indicated that the students like having easy "access twenty-four hours a day, seven days a week." They also liked the idea of "immediate feedback" and the quick exchange of information. One faculty member felt closer to her students because of the E-mail exchanges. One respondent indicated that her college provides E-mail addresses for all full-time and part-time faculty and for students who desire them. However, it is up to the instructors to decide if they want to use it in their courses. It is quite interesting that compared with the relatively high use of E-mail, almost no one uses the chatroom capabilities of the Internet. One major drawback of the chatroom is scheduling. Community college students follow a wide range of schedules. It is very difficult to find a time when most or all of the class will be on line at the same time. To schedule such a time would eliminate the touted web advantage of flexibility.

The next most popular application of the Internet is as a source of information, current data, and project ideas. One respondent stated that "the on-line research component of my Calculus I class has increased the amount of student communication about mathematics and encouraged them to explore connections between calculus and other disciplines." Two other respondents said that current information made projects more meaningful and interesting for the students.

One respondent indicated that the students in her Internet class were more motivated and worked at a "higher quality" level than those in her other classes. This respondent also indicated that this class takes much more preparation time, even though it is a net enhanced course and not an on-line course. She indicated in an interview that she spends about three hours a day developing and enhancing her site and responding to E-mail. Although the time factor was not a problem for her, it was for another respondent.

On-Line Mathematics Courses on the National Level

The investigator visited the web sites of 774 two-year colleges across the United states. These sites were selected from a list of colleges in a site provided by the University of Texas at Austin (utexas.edu world/comcol). Of these, 264 (34%) offered on-line courses. Only 76 (10%) of these colleges currently offered mathematics courses on-line or had on-line math courses listed for the summer or fall 1999 semesters. It might be noted that this is a much lower proportion than New Jersey's projected 26% for the fall semester.

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A questionnaire was E-mailed to twenty-five mathematics faculty members listed as currently teaching on-line courses. (A copy of the questionnaire is in Appendix B.) These faculty members were from community colleges representing thirteen states. Only five questionnaires were returned. The respondents were from Illinois, Massachusetts, Nevada, Tennessee, and Texas. The researcher found it intriguing that only 20% of the E-mailed questionnaires were returned versus the 84% in the mailed form done in New Jersey. The results may be related to the fact that the researcher is known by many of the respondents in New Jersey and not by those on the national level. However, the question still lingers as to whether the format, E-mail vs. paper mail, played a role. If it did play a role, it could have implications for courses taught on the Web.

The following information is based on the five responses mentioned above plus the response from the earlier survey received from a New Jersey college which currently offers on-line mathematics courses. Five of the six respondents said that only a few members of their math departments used the net to support their courses. One indicated that about half of his department used the net. The respondents indicated the Internet was used in the following courses and in the following ways.

# of colleges	Course	Use S M	C R	AP	E M	Full
5	Basic Skills	2	1	1	2	2
3	College Algebra	2	2	2	2	3
1	Finite Math	1	1	1	1	1
1	Liberal Arts Math	1	1	1	1	1
1	Contemporary Math 1	-	-	1	1	-
1	Contemporary Math 2	-	-	1	1	-
1	Math for Elem. Teach	-	-	1	1	-
3	Statistics	-	-	1	2	1
4	Precalculus	2	1	1	2	1
5	Calculus	3	2	2	4	2
1	Linear Algebra	-	-	-	-	1
2	Differential Eq.	-	-	-	1	1

S M - support material such as syllabi, class notes, assignments etc. are given on the net
C R - chatroom is provided for the students to discuss their work with each other
AP - the net is used as a resource for applications and / or research topics
E M - E-mail is utilized as a communication link between faculty and students
Full - the complete course is offered in "distance learning" mode on the net

As with the New Jersey study, E-mail was the most popular application of the Internet. However, there was an increased use of the chatroom facility with this group that offered on-line courses. Again, using the net as a resource for applications and / or research topics was also important.

All six respondents indicated that the Internet sections used basically the same syllabus as the non-Internet sections. However, two indicated that they were not taught at the same level. They did not indicate whether they considered the Internet level to be higher or lower. One indicated that a CD ROM and extra files created by the instructor

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were used with the Internet sections. The second respondent indicated that the Internet students had on-line materials in addition to the text and would only see the instructor when they had problems. Two of the six respondents indicated that the Internet sections had a lower retention rate than the standard sections. One of these indicated a drastic difference for College Algebra sections: 60% retention for the lecture format vs. 25% for the Internet format. A third respondent also indicated differences in retention, but noted that it varied by course. In this case the Internet section of Liberal Arts Math had a higher retention rate than the standard format while the Internet Differential Equations sections had a lower retention rate.

When asked what they considered an appropriate cap on enrollment for an Internet section, half of the respondents indicated a maximum of twenty students. One said twenty-five, another thirty-five, and a third said twelve. Based on conversations with people teaching on-line courses, the problem with larger sections is communications. Reading and responding to E-mail is very time consuming. This may turn out to be a problem for students as well as faculty if the students E-mail each other. Chatrooms have even greater problems with larger groups. A group larger than twenty or twenty -five students can lead to utter chaos in a chatroom. When asked what upper limit their colleges placed on Internet sections, four respondents gave numbers between thirty and thirty-five. One respondent said fifteen. The sixth said the current limit is forty-five, but it is being reduced to twenty-four. It seems that most colleges, if this sample is representative, do not yet recognize the unique problems for Internet sections.

None of the six colleges represented used screening devices to determine whether students are suitable candidates to successfully take an on-line course. The researcher noted as he visited the various college web sites that some colleges state that certain types of students are more suited for on-line courses, or distance learning courses in general, than others. They provided self-evaluation tests to help students determine whether or not they should attempt an on-line course or a distance learning course. The researcher believes that the use of such self-evaluation tools will become more prevalent as colleges become more aware of the unique characteristics of on-line courses and the special personal traits needed to be successful in taking such courses.

The respondents were asked if they, as faculty members, had encountered any major problems in offering math courses over the net. The primary problem seemed to be time. As one respondent put it, colleges don't appreciate "the fact that teaching the course over the net takes at least twice as much time as teaching it in a regular lecture situation." Another respondent suggested that on-line courses take much more time to develop and faculty should be given 3+ hours release time for on-line course development. One respondent stated that the frustration of the increased work load of an on-line course is exasperated by the low retention rates associated with it. One problem surprised the investigator. The respondent indicated that communication with students was a problem. When she sent E-mails to her students, she had no guarantee they would read them. Students also failed to report their progress on a regular basis. Other problems included testing centers losing tests, on-line sections being too large, and a lack of support.

When asked about problems experienced by the students, respondents indicated the lack of self-discipline as the primary problem. Students seem to put off doing assignments. This would tie in with the response mentioned earlier about students not reading their E-mail or reporting on their progress. An instructor may send out the weekly assignment or materials at the beginning of the week and expect assignments to be returned by the beginning of the next week. Students may wait until the end of the week to go to the web and then try to do in one or two days what they should have been thinking about all week. This, again, points up the need for self-evaluation instruments for potential on-line students. Other difficulties noted included problems getting course materials and an unfamiliarity with the Web. Two respondents indicated that WebCT makes tasks easier for the students.

Most respondents indicated a need for technical support both for themselves and for their students. One respondent stated that "technological savvy" is needed to make the task easier and "to answer the questions posed by some students." Several respondents implied, if not stated, that they have become the technical support for their students. One respondent stated that "you need technological and financial support to be successful." Only one respondent indicated that his college provided technical training for faculty in a Faculty Development Center. Another stated that her college had hired a technician to help instructors put the materials on-line. One respondent indicated a problem with viewing slides developed on Power Point Equation Editor on the browser, NetScape Navigator. He indicated that he solved this by importing Microsoft Internet Explorer. Perhaps more important to mathematics faculty, some respondents stated that they have problems putting math symbols on their web sites. An even broader problem is trying to use math symbols in E-mail and in chatrooms. A couple on-line math instructors interviewed, but not included in the survey, indicated that some students can be quite creative in trying to overcome this obstacle. Lack of communication between the "Webmaster" and the community can also cause problems. One respondent related that his college's "'Webmaster' decided to restructure the college's web site and moved all my course folders - without telling me or my students!"

The respondents were asked what percent of their students have access to the Web. They all indicated 100%. This answer, however, was based on the availability of labs and PC's on campus not necessarily on the students owning the necessary equipment or having access to it in their homes. All respondents indicated that all students had access to the Web via labs and other sites with Internet access on campus. One respondent said that only about half of the students had Internet access in their homes. Another noted that students without access to the Web at home or at work were unlikely to sign up for an on-line course.

Several formats for testing were reported . Two respondents reported that in some sections testing is done on-line. Another indicated that quizzes are given on-line, but students must come on campus to take tests. Most respondents referred to on-campus test centers and / or off-campus sites. Usually a picture ID is required. No one indicated how they insure that the actual student, and not a substitute, takes the on-line tests and quizzes.

Summary, Conclusions, and Questions

Out of the 774 web sites for two-year colleges across the country visited by the researcher, 34% indicated that the college offered on-line courses, but only 10% indicated that they offered on-line mathematics courses. The question remains as to why. Is it because the mathematics faculty do not feel this is an appropriate format for mathematics education? Is it due to the the difficulty in communicating mathematics in E-mail and chatrooms? Is it because the time required is so much greater than traditional formats and the resulting retention rate is lower? Perhaps it is simply that the technology is new. As was seen, New Jersey will go from 5% of its nineteen community colleges offering on-line math courses in the 1999 Spring Semester to 26% in the 1999 Fall Semester.

If colleges plan to offer on-line courses, they must be ready to provide technical support for both the faculty and the students. For the students, this should include a twenty-four hour help line. The technicians manning this line must not only be able to help correct problems with the server, but also answer questions posed by the students on how to get their PC's to do what needs to be done or how to use needed software. The twenty-four hour a day, seven days a week availability is essential. Students in the two-year colleges, even more than those in the four-year institutions and universities, follow very diverse work, college, and study hours. If they have problems at 3 AM, and cannot get to the help line until 9 PM the next day due to their classes and / or job responsibilities, the process will not work. Workshops on self-motivation and self-disciple should be made available to the students as well as training on the use of the Web including E-mail and chatrooms. This latter training should not be left to the individual course instructor.

Technical support for the faculty must be in several forms. First, faculty need training on web site development, strategies for using the Web effectively, and how to use the necessary software, E-mail, and chatrooms. As one on-line specialist stated in an interview, "This is a brand new way of teaching." You are not just electronically mailing your lecture. Second, they may need technological assistance to set up and maintain their course web sites. Third, they will also need a help line to answer problems, to get the Web up and running again when it goes down, and to help answers questions posed to them by their students. Finally a "Webmaster" must be employed who understands the unique needs of a college community which is offering on-line courses. This should be a full-time position, not something tacked on to some employee's already busy schedule.

On-line courses are not for everyone. That is true for both faculty and students. Educators need to determine the characteristics that will allow a student to be successful in an on-line course. Colleges need to either develop or purchase and then implement some type of self-evaluation tool to help guide the students. Otherwise the retention rates will drop lower than they are now. Faculty members must also be assisted in determining if this teaching format matches their style and personality. The occasional faculty member who sees teaching on-line courses as a way to an "easy schedule" needs to be educated to the true demands of this type of course and possibly urged not to teach this

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format. To be fair, colleges must be ready to provide on-line teachers with release time to develop and maintain the on-line courses and their web sites. They must also be willing to set enrollment limits to twenty students for on-line courses.

Adequate hardware is also a major consideration in going on-line. Faculty members must have easy access to the Web both on campus and at home. One of the greatest claims for on-line courses is the availability of help from faculty members via E-mail. This means that a faculty member is expected to check the E-mail seven days a week. This will not happen if the instructor only has access in his or her office on campus. This raises two questions. Should faculty members be assisted in purchasing equipment or be provided equipment to use at home? Second, should faculty members be at least partially reimbursed for Internet access charges? Students also need access to the Internet. This means colleges must provide adequate access sites for students on campus. However, there is another set of questions already raised by some education writers. Does this set up inequity for certain groups of students who cannot afford Internet access in their homes. Do colleges have the responsibility of providing the necessary hardware for students who cannot otherwise afford it? Using the access on campus is not really an adequate answer. If a student must go to a lab on campus, a major part of the flexibility touted by this format has been lost. A student who only has access to the course web site, E-mail, and chatrooms once or twice a week will be at a definite disadvantage compared with a student who has daily access at home or work.

Colleges must not look at on-line courses as a way to "offer more for less." If they are to provide adequate on-going technological and financial support for the system, maintain the hardware, and keep the class sections at a suitable size, on-line education may turn out to be very expensive. The investigator found that some colleges have already formed consortia to offer on-line courses. Perhaps this in part is due to cost. However, this raises questions, at least for the investigator. Will this lead to larger and perhaps educationally ineffective sections? Will local departments lose control of their courses? If a course is offered by a consortium of five colleges, which department decides the content of the course? It is frequently difficult for a single department to make this decision let alone five departments combined. The fact that the course may be taught by a person who is not a member of any of the departments also raises concern.

This is an exciting and challenging time for mathematics education at the community college level. As indicated, although the percent of colleges offering on-line math courses is small, there will be rapid growth in the next few semesters. If the surveys show an accurate picture, New Jersey's community college system is on par with its counterparts across the country in on-line math education. There are many opportunities open now that were never there before. But there are also major questions to be answered and potential disasters to be avoided. Mathematics education groups such as AMATYC, MAA, and NCTM must take the lead in researching some of the questions and in providing training for their members in the effective uses of the new technology in community college mathematics classes.

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Appendix A
Using the Net to Teach Mathematics
Questionnaire Form A

1. Do members of your Mathematics Department currently use the Internet to support any of their courses?
   ___ Yes (If yes, **please complete Section A.**)
   ___ No (If no, **please skip Sections A and B and complete Section C.**)

Section A (Please complete this section only if your answer to question 1 was "yes".)

2. The net is used to support math courses by
   ___ most of the members of our department
   ___ about half of the members of our department
   ___ only a few members of our department
   Comments

3. If at least one section of a course listed below uses the Internet in some way, please put a check to the left of the course. Also place a check in the column(s) that indicates how the net is used.

		S M	C R	I P	E M	Full	Other (please specify)
___ Basic Skills	___	___	___	___	___		
___ Statistics	___	___	___	___	___		
___ Precalculus	___	___	___	___	___		
___ Calculus	___	___	___	___	___		
___ Linear Algebra	___	___	___	___	___		
___ Differential Eq	___	___	___	___	___		
___ Other		___	___	___	___	___	
(Please specify)							

S M - support material such as syllabi, class notes, assignments etc. are given on the net
C R - chatroom is provided for the students to discuss their work with each other
I P - the net is used as a resource for applications and / or research topics
E M - E-mail is utilized as a communication link between faculty and students
Full - the complete course is offered in "distance learning" mode on the net

4. Please comment on any positive outcomes from utilizing the Internet in your math course(s).

5. Please comment on any negative outcomes from utilizing the Internet in your math course(s).

Please complete Section B only if you offered at least one section of math over the Internet as a distance learning option. If you did not, please skip to section D.)

Section B: (only for courses offered on the Internet as a distance learning option)

6. Is the syllabus for the Internet section(s) basically the same as the syllabus for the non-Internet sections?
   ___ Yes ___ No (If no, please comment on differences)

7. Is the level of presentation for the Internet section(s) basically the same as the level for the non-Internet sections? ___ Yes ___ No (If no, please comment on difference)

8. Is the retention rate for the Internet section(s) basically the same as the retention rate for the non-Internet sections? ___ Yes ___ No (If no, please comment on difference)

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9. How do you conduct testing for the Internet section(s) ?

10. What type of technical support does your college provide for your Internet section(s) ?

11. What upper limit do you believe should be placed on the size of an Internet section?

12. Does your college have an upper limit for the enrollment in an Internet section?
If yes, what is it?

13. Do you use a screening device to determine if a student is a suitable candidate to successfully take a distance learning course over the Internet?

14. Have you encountered any major problems in offering courses over the net?
(If yes, please comment on the problems and give any suggestions that might help others avoid having the same problems.)

Please Skip to Section D

Section C (Please complete this section only if your answer to question 1 was "no".)

15. What do you see as the primary reason(s) your department does not use the net?
(check as many as appropriate)
___ Lack of adequate support for the idea within the department
___ Lack of adequate support from the administration
___ Lack of adequate hardware
___ Lack of adequate funding
___ Lack of adequate training for faculty
___ Other (please specify)

Comments

16. Does your department expect to use the net in any of its courses during the academic year 1999-2000?

_____ Yes ___ No ___ Uncertain

(Please complete Section D.)

Section D

Please give Your Name _____

Your College _____

May I contact you if I have further questions? __ Yes __ No

If yes, would you prefer me to __ call - phone # _____

__ use E-mail - address _____

Would you like me to send you a copy of my final report? __ Yes __ No

Thank you very much for your help

Please return this questionnaire by Friday, April 16, 1999

to Dr. Charles Miller
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P. O. Box 200
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Or cjmiller@email.njin.net

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Appendix B
Using the Net to Teach Mathematics
Questionnaire Form E

Section A (General)

1. The net is used to support math courses by
   ___ most of the members of our department
   ___ about half of the members of our department
   ___ only a few members of our department
   Comments:

2. If at least one section of a course listed below uses the Internet in some way, please put a check to the left of the course. Also place a check in the column(s) that indicates how the net is used.

	S M	C R	AP	E M	Full	Other (please specify)
___ Basic Skills	___	___	___	___	___	
___ Statistics	___	___	___	___	___	
___ Precalculus	___	___	___	___	___	
___ Calculus	___	___	___	___	___	
___ Linear Algebra	___	___	___	___	___	
___ Differential Eq.	___	___	___	___	___	
___ Other (Please specify)	___	___	___	___	___	

S M - support material such as syllabi, class notes, assignments etc. are given on the net
C R - chatroom is provided for the students to discuss their work with each other
AP - the net is used as a resource for applications and / or research topics
E M - E-mail is utilized as a communication link between faculty and students
Full - the complete course is offered in "distance learning" mode on the net

Section B: (only for courses offered on the Internet as a <u>distance learning option</u>)

3. Is the syllabus for the Internet section(s) basically the same as the syllabus for the non-Internet sections? ___ Yes ___ No (If no, please comment on differences)

4. Is the level of presentation for the Internet section(s) basically the same as the level for the non-Internet sections? ___ Yes ___ No (If no, please comment on difference)

5. Is the retention rate for the Internet section(s) basically the same as the retention rate for the non-Internet sections? ___ Yes ___ No (If no, please comment on difference)

6. How do you conduct testing for the Internet section(s)?

7. What type of technical support does your college provide for your Internet section(s)?

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8. What upper limit do you believe should be placed on the size of an Internet section?

9. Does your college have an upper limit for the enrollment in an Internet section?
   If yes, what is it?

10. Do you use a screening device to determine if a student is a suitable candidate to successfully take a distance learning course over the Internet?

11. Have you encountered any major problems in offering courses over the net?
   (If yes, please comment on the problems and give any suggestions that might help others avoid having the same problems.)
   a) Problems experienced by faculty

   b) Problems experienced by students

   c) Problems with the technology

12. What percent of the students at your college have access to the Web?

13. How do you accommodate students who do not have a PC with modem in their homes?

Section C

Please give your name _____

Your College _____

14. May I contact you if I have further questions? ___ Yes ___ No
   If yes, would you prefer me to ___ call - phone = _____
   ___ use E-mail - address _____

15. Would you like me to send you a copy of my final report? ___ Yes ___ No

Thank you for your help.

Please return this questionnaire by Friday, April 30, 1999.

to: cmiller@camden.rutgers.edu or

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Appendix C

Participating Colleges

Representatives from the following New Jersey community colleges responded to Questionnaire A:

Atlantic Cape Community College
Bergen Community College
Brookdale Community College
Burlington County College
Camden County College
Cumberland County College
Gloucester County College
Hudson County Community College
Mercer County Community College
County College of Morris
Ocean County College
Passaic County Community College
Raritan Valley Community College
Salem Community College
Sussex County Community College
Union County College

Representatives from the following two-year colleges responded to the national Questionnaire E:

Community College of Southern Nevada, Nevada
Oakton Community College, Illinois
Springfield Technical Community College, Massachusetts
Tomball College, Texas
Volunteer State Community College, Tennessee

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